U.S. Environmental Protection Agency
Toxic Substances Control Act (TSCA)

SECTION 403 RULEMAKING

"...identify lead-based paint hazards, lead-contaminated dust, and lead-contaminated soil."

SECTION 403 DIALOGUE PROCESS

BACKGROUND INFORMATION AND DISCUSSION GUIDE

SOIL DISCUSSION ISSUES

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RESIDENTIAL SOIL CONTAINING LEAD

DISCUSSION ISSUES

The Environmental Protection Agency (EPA) is seeking comment and insight into a range of relevant issues related to elevated lead levels in residential soil. What follows are a series of discussion issues with associated questions. Where appropriate, supporting text is provided to guide the discussion.

ISSUE 1. ***What are the most important factors to consider and what weight should be given to each factor in setting a standard for soil?***

The Title X definition of lead-based paint hazard includes "any condition that causes exposure to lead from ... lead-contaminated soil ... that would result in adverse human health effects...". While some may interpret this definition to imply that the primary goal of the standard should be to reduce blood-lead below a certain level, a stated purpose of the Act is the need to prioritize the reduction of lead-based paint hazards. From a policy perspective, these directions could be somewhat conflicting--the former arguing for a relatively stringent standard and the latter for a standard that would tend to target the worst-case scenarios.

Figure 1 illustrates two of the ways EPA has to assess the relationship between the probability that a child will exceed a specific blood-lead level and the average soil-lead concentration at the child's residence.

> These representations are provided for the purpose of aiding the dialogue process and should not be interpreted as the final analysis EPA will use in its risk assessment and rulemaking. Each representation assumes a set of assumptions that have been chosen for purposes of the dialogue discussion.
> The risk assessment and rulemaking, however, will require further refinement of the assumptions and more rigorous analysis and review.

When establishing a standard for soil, EPA's task can be seen as balancing Title X's objectives of protectiveness (reduction in future blood-lead levels) and priority-setting (focusing on homes with the highest soil-lead concentrations). The graphic representations portrayed in Figure 1 provide a framework to illustrate the tradeoffs among objectives EPA will have to make. EPA is seeking input from dialogue participants on how to balance these objectives and what other factors (e.g., achievability) should be considered in arriving at a soil standard.

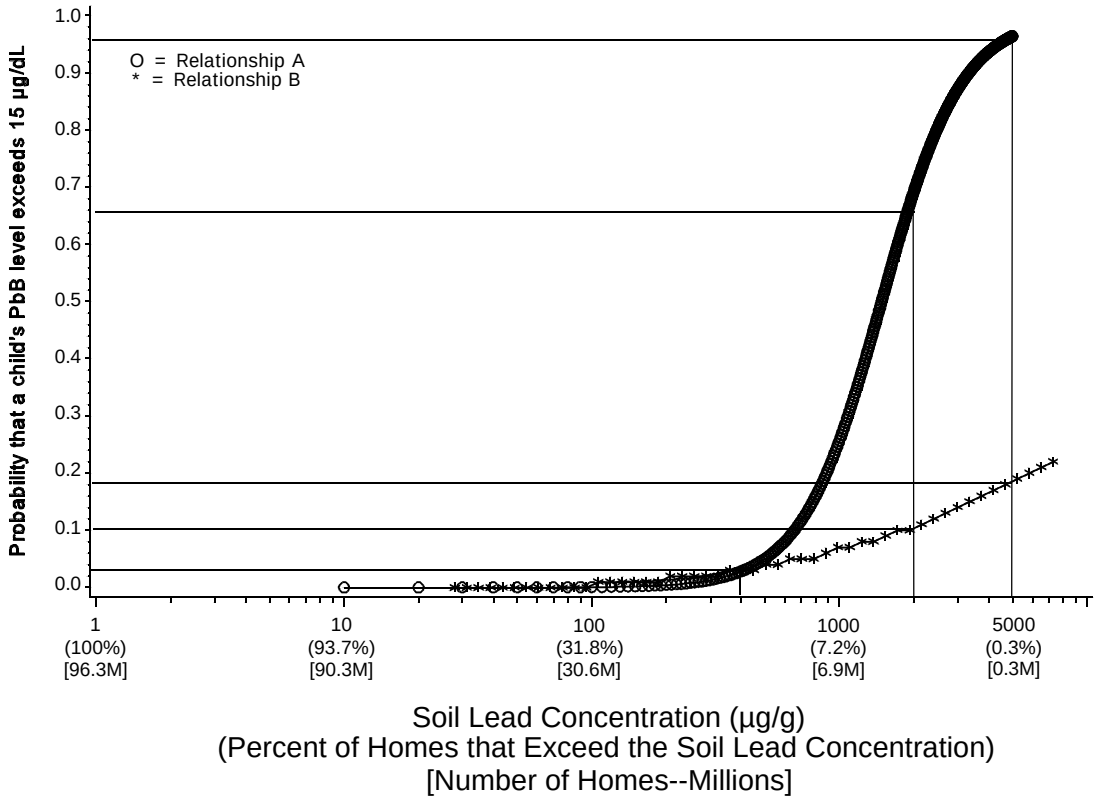

Figure 1. Illustration of Estimated Relationships[1] Between the Probability of Blood Lead Levels Greater than 15 µg/dL and Soil Lead Concentration

[1] This figure is a hypothetical illustration and is for purposes of discussion only. The graphs do not indicate the uncertainty (which is substantial) in the relationship.

The estimated percent and number of homes exceeding each soil-lead concentration were based on the 1994 housing stock and were estimated from the HUD National Survey data [1] by adjusting the assigned weights for each sampled house to include homes from 1980-1994.

The use of 15 µg/dL in this graph is for discussion purposes only and does not reflect EPA policy or any proposed changes to policy.

For discussion purposes only, consider the hypothetical standard (based on EPA's Interim Guidance) [2] presented as an example in Table 1 below.

Table 1. Hypothetical Soil Standard Presented for Discussion Purposes Only

EXAMPLE STANDARD (THE 403 GUIDANCE)				COMPARISON OF PROTECTIVENESS VERSUS AFFORDABILITY			
				Hypothetical Probability of a Blood-Lead Level > 15 µg/dL[1]			
Tiered Levels of the Standard	Soil Lead Concentration (ppm)	Location	Recommended Actions	Relation-ship A	Relation-ship B	Estimated Number of Homes Above the Standard[2]	Hypothetical Estimated Number of Homes Recommended to Take Action[3]
Lowest Level	400 ppm	Area Expected To Be Used By Children	Interim Controls	3%	3%	13.6M (14.6%)	2.3M
Middle Level	2000 ppm	All	Interim Controls	69%	10%	2.8M (2.9%)	2.8M
High Level	5000 ppm	All	Soil Abatement	96%	19%	0.3M (0.3%)	0.3M

[1] Taken from the hypothetical curves presented in Figure 1.
[2] Estimated from the HUD National Survey, adjusted to include the housing stock as of 1994.
[3] Estimate of the number of homes above the standard that will have some kind of remedial action recommended. For homes with soil-lead concentrations between 400 ppm and 2000 ppm, this is estimated as the number of those homes with children less than 6 years old (estimated from the American Housing Survey to be 17% of the total).

Is there a minimum level of protectiveness that is acceptable to you (e.g., a greater than 20 percent likelihood that a child's blood-lead level will exceed 15 µg/dL is unacceptable)? Should this apply to a general population of young children, or the most vulnerable population of young children (e.g., poor, black, inner city children)?

In considering the need to prioritize response resources, is there a maximum number of housing units that you think should be affected by the soil standards (e.g., 0.5 million, 2.5 million, 10 million)? What is the rationale you use to make this choice? How is it affected by the recommended action, e.g., interim controls (planting grass or placing barriers) versus soil abatement?

What advice can you give EPA for making tradeoffs between protectiveness and the number of homes affected?

As in many other programs, EPA must make decisions in the absence of perfect information about risk (i.e., with some uncertainty about the relationship between soil-lead levels and blood-lead levels). EPA will eventually use its best scientific knowledge to estimate this relationship. Given your experience and values, do you have any recommendation for how EPA should proceed in the face of this uncertainty (e.g. discuss in preamble, err on conservative side, etc.)?

What other factors should EPA consider in setting a standard for soil?

ISSUE 2. ***How should "bare soil " be defined?***

Title X defines lead-contaminated soil as *"bare soil* on residential real property that contains lead at or in excess of the levels determined to be hazardous to human health..." Currently, EPA's proposed Section 402/404 rule includes the following definition of bare soil:

> *Bare Soil* means soil not covered with grass, sod, or some other similar vegetation. Bare soil includes sand.

The Title X language, combined with the 402/404 definition of bare soil, would not consider soil in yards with a vegetative cover to be a hazard.

This raises several issues:

- Should grass-covered yards with very high soil-lead concentrations be addressed given the concern that exposures from soil still occur even in grass covered yards? How should grass-covered yards be addressed?

- Is a high tier in a multi-tiered soil standard (e.g., abatement recommended for high soil-lead concentrations) useful when the rule can be rendered inapplicable by planting grass?

What are your views on these issues? Should EPA keep the definition of bare soil as given in the 402/404 rule, and address these issues in the preamble to the rule?

One alternative might be to retain the 402/404 definition of bare soil as having no vegetative cover, but to define grass-covered soil with high lead concentrations as a "lead-based paint hazard". Is this a reasonable and protective alternative? What other responses, if any, should EPA consider to address these issues?

Subissue Should an allowable de minimis amount (i.e., minimum square footage) of bare soil be defined that would not cause the soil to be considered a hazard?

Current HUD Guidelines [3] state that "Except for play areas, yard or soil areas containing a total of less than 9 square feet of bare soil are not considered to be hazardous and need not be sampled."

Should such a minimum be defined, and, if so, what is the right minimum and what would be the basis for that value?

ISSUE 3. ***Can a yard be divided into identifiable sub-areas or should it be treated as a single entity?***

EPA's guidance on lead-based paint hazards presented two action levels (i.e., where interim controls are recommended) for lead: one for areas where children are likely to have contact (e.g., play areas) and a higher action level for areas where children are unlikely to have contact. Given that many children play throughout the yard, does this distinction still make sense?

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REFERENCES

[1] U.S. Environmental Protection Agency, "Report on the National Survey of Lead-Based Paint in Housing—Appendix II: Analysis." Office of Pollution Prevention and Toxics, EPA 747-R95-005, April 1995.

[2] U.S. Environmental Protection Agency, "Guidance on Identification of Lead-Based Paint Hazards;" Notice. Federal Register, pp 47248-47257, September 11, 1995.

[3] U.S. Department of Housing and Urban Development, "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing." Office of Lead-Based Paint Abatement and Poisoning Prevention, Washington DC, HUD-1539-LBP, July 1995.

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